

Invention relates to scintillation technology and can be used in the creation of detectors for detecting thermal neutrons against a gamma-ray background for high-energy physics, nuclear power engineering, environmental monitoring, and other fields of science and technology. Scintillation element for detecting thermal neutrons consists of polymethylmethacrylate layers alternating with layers of scintillation material made of a mixture of silver-activated zinc sulfide powder and a neutron converter dispersed in a transparent polymer matrix, which are coated on five sides with a light-reflecting material. Wherein the scintillation element contains 3-4 layers of scintillation material, and dicarba-closo-dodecaborane(12) as the neutron converter, with the following ratio of components in the scintillation material, wt. %:

dicarba-closo-

dodecaborane(12) ($C_{2H_{12}B_{10}}$) 5-20

silver-activated

zinc sulfide ($ZnS:Ag$) the rest.

Neutron-sensitive scintillation element has a neutron detection efficiency at the level of 85%.